UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,220	11/03/2003	Sunil Bharitkar	43968-0003	3086

33123 7590 09/20/2007

HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA 92122

EXAMINER	
MONIKANG, GEORGE C	
ART UNIT	**PAPER NUMBER**
2615	

MAIL DATE	DELIVERY MODE
09/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,220	BHARITKAR ET AL.	
	Examiner	Art Unit	
	George C. Monikang	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

In regards to arguments surrounding the provisional double patenting, examiner acknowledges that there was a typo in the office action mailed 2/22/2007. The application number 10700220 (hereinafter referred to as '220) is broader than copending application number 10/465644 hereinafter referred to as '644 thus the claims in '644 are encompassed by the claims in '220.

Applicant's arguments filed 7/9/2007 for claims 1, 8, 14 & 20 have been fully considered but they are not persuasive.

With respect to Applicant's arguments on page 11, Applicant asserts that Abel in view of Inoue does not teach or disclose all the limitations in claims 1, 8, 14 & 20 in such a manner that will make it obvious to one of ordinary skill in the art and with expected results.

The examiner is not persuaded by the applicant's arguments as the applicant fails to clearly state how Abel and Inoue fail to disclose the limitations of claims 1, 8, 14, 20, why it would in fact not be obvious to one o ordinary skills in the art and why the results will not be expected.

As restated in examiner's rejection below, Abel and Inoue disclose all the limitations of claims 1, 8, 14, 20 with a clear motivation.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Relative to both claims 1, the '220 claim 1 is a broader recitation of the same invention claimed in '644 claim 1. Therefore, '644 claim 1 is encompassed by '220 claim

1. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim 2 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 3 and 4 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The '220 claim 2 is a broader recitation of the same invention claimed in '644 claims 2, 3 and 4. Therefore, '644 claims 2, 3 and 4 are encompassed by '220 claim 2. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim 3 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The '220 claim 3 is a broader recitation of the same invention claimed in '644 claim 5. Therefore, '644 claim 5 is encompassed by '220 claim 3. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim 4 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The '220 claim 4 is a broader recitation of the same invention claimed in '644 claim 6. Therefore, '644 claim 6 is encompassed by '220 claim 4. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim 7 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 11 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The '220 claim 7 is a broader recitation of the same invention claimed in '644 claim 11. Therefore, '644 claim 11 is encompassed by '220 claim 7. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim 17 (Application No. 10/700,220, hereinafter referred to as '220) is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/465644 (Hereinafter referred to as '644). Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The '220 claim 17 is a broader recitation of the same invention claimed in '644 claim 7. Therefore, '644 claim 7 is encompassed by '220 claim 17. It is critical that patents issuing from these applications be commonly owned to avoid potential licensees from owing license fees to two different parties.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 8,14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877, in view of Inoue et al, US Patent 5,771,294.

Re Claim 1, Abel discloses a method for correcting room acoustics by warping each of the room acoustical response measured at said each listener position (*fig. 7a: 121*); determining a general response by computing a weighted average of the warped room acoustical responses at multiple-listener positions (*fig. 10: 74; col. 10, lines 11-14*), generating a low order spectral model of the general response (*fig. 10: 74; col. 30-36*); obtaining a warped acoustic correction filter from the low order spectral model (*fig.*

10: 75) unwarping (*fig. 7a: 129*) the warped acoustic correction filter. Abel fails to disclose the following, however, Inoue et al discloses the method comprising: measuring a room acoustical response at each listener position in a multiple-listener environment (*col. 4, lines 48-60*); to obtain a room acoustic correction filter (*fig. 5: 38*) wherein the room acoustic correction filter corrects the room acoustics at the multiple-listener positions.

Taking the combined teachings of Abel and Inoue et al, one skilled in the art would have found it obvious to modify the method for correcting room acoustics by warping each of the room acoustical response measured at said each listener position (*fig. 7a: 121*); determining a general response by computing a weighted average of the warped room acoustical responses at multiple-listener positions (*fig. 10: 74; col. 10, lines 11-14*), generating a low order spectral model of the general response (*fig. 10: 74; col. 30-36*); obtaining a warped acoustic correction filter from the low order spectral model (*fig. 10: 75*) unwarping (*fig. 7a: 129*) the warped acoustic correction filter of Abel with the method comprising: measuring a room acoustical response at each listener position in a multiple-listener environment (*col. 4, lines 48-60*); to obtain a room acoustic correction filter (*fig. 5: 38*) wherein the room acoustic correction filter corrects the room acoustics at the multiple-listener positions as taught in Inoue et al so that the system could be less complex, inexpensive and provide clear noiseless to multiple listeners.

Claim 8 has been analyzed and rejected according to claim 1.

Claim 14 has been analyzed and rejected according to claim 1.

Re Claim 20, Abel discloses the method comprising: warping each room acoustical response (*fig. 7a: 121*), said each room acoustical response obtained at each expected listener position (*fig. 7a: 121*); clustering (*averaging*) each of the warped room acoustical response into at least one cluster, wherein each cluster includes a centroid (*average*); forming a general response from the at least one centroid (*fig. 10: 74; col. 10, lines 11-14*); inverting the general response to obtain an inverse response (*fig.7a: 56*); obtaining a lower order spectral model of the inverse response (*fig. 10: 74; col. 30-36*); unwarping (*fig. 7a: 129*) the lower order spectral model of the inverse response. Abel fails to disclose the following, however, Inoue et al discloses the method for correcting room acoustics at multiple-listener positions (*col. 4, lines 48-60*), to form the room acoustic correction filter (*fig. 5: 38*); wherein the room acoustic correction filter corrects the room acoustics at the multiple-listener positions.

Taking the combined teachings of Abel and Inoue et al, one skilled in the art would have found it obvious to modify the method comprising: warping each room acoustical response (*fig. 7a: 121*), said each room acoustical response obtained at each expected listener position (*fig. 7a: 121*); clustering (*averaging*) each of the warped room acoustical response into at least one cluster, wherein each cluster includes a centroid (*average*); forming a general response from the at least one centroid (*fig. 10: 74; col. 10, lines 11-14*); inverting the general response to obtain an inverse response (*fig.7a: 56*); obtaining a lower order spectral model of the inverse response (*fig. 10: 74; col. 30-36*); unwarping (*fig. 7a: 129*) the lower order spectral model of the inverse response of Abel with the method for correcting room acoustics at multiple-listener positions (*col. 4,*

lines 48-60), to form the room acoustic correction filter (*fig. 5: 38*); wherein the room acoustic correction filter corrects the room acoustics at the multiple-listener positions as taught in Inoue et al so that the system could be less complex, inexpensive and provide clear noiseless output to multiple listeners.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877, in view of Inoue et al, US Patent 5,771,294, and further in view of Moller et al, US Patent 6,118,875.

Re Claim 2, the combined teachings of Abel and Inoue et al disclose the method of claim 1, but fails to disclose further comprising generating a stimulus signal for measuring the room acoustical response at each of the listener positions. However, Moller et al does (*col. 22, lines 47-53*).

Taking the combined teachings of Abel, Inoue et al and Moller et al, one skilled in the art would have found it obvious to modify the method according to Abel and Inoue et al with further comprising generating a stimulus signal for measuring the room acoustical response at each of the listener positions as taught in Moller et al (*col. 22, lines 47-53*) so that the EQ of the enclosure could be set up.

Claims 3-4, 9-10 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877 and Inoue et al, US Patent 5,771,294 as applied to claim 1 above, in view of Hong, US Patent Pub. 2003/0200236 A1.

Re Claim 3, the combined teachings of Abel and Inoue et al disclose the method according to claim 1, but fails to disclose wherein the general response is determined by a pattern recognition method. However, Hong does (*para 0090*).

Taking the combined the teachings of Abel, Inoue et al and Hong, one skilled in the art would have found it obvious to modify the method according to Abel and Inoue et al with wherein the general response is determined by a pattern recognition method as taught in Hong (*para 0090*) so that distortions introduced by the room can be corrected simultaneously to multiple-listener positions.

Re Claim 4, the combined teachings of Abel, Inoue et al and Hong disclose the method according to claim 3, wherein the pattern recognition method comprises a method selected from a group consisting of: a hard c-means clustering method or a fuzzy c-means clustering method (*Hong, para 0090*).

Claim 4, further recites, "Wherein the pattern recognition method comprises a method selected from a group consisting of: an adaptive learning method." The combined teachings of Abel, Inoue et al and Hong do not disclose an adaptive learning method as claimed. Official notice is taken that both the concepts and advantages of providing an adaptive learning method are well known in the art. It would have been obvious to use an adaptive learning method since it is commonly used in adaptive filters to find filter coefficients that relate to producing least squares of the error signal.

Claim 9 has been analyzed and rejected according to Claim 3.

Claim 10 has been analyzed and rejected according to Claim 4.

Claim 15 has been analyzed and rejected according to Claim 3.

Claim 16 has been analyzed and rejected according to Claim 4.

Claims 5, 11, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877 and Inoue et al, US Patent 5,771,294 as applied to claim 1 above, in view of Kates, US Patent 6,980,665 B2.

Re Claim 5, the combined teachings of Abel and Inoue et al disclose the method according to claim 1, but fails to disclose wherein the warping is achieved by means of a bilinear conformal map. However, Kates does (*col. 5, lines 23-30*).

Taking the combined teachings of Abel, Inoue et al and Kates as a whole, one skilled in the art would have found it obvious to modify the method according to Abel and Inoue et al with wherein the warping is achieved by means of a bilinear conformal map as taught in Kates (*col. 5, lines 23-30*) so that the method can compensate for both analog and digital signals.

Claim 11 has been analyzed and rejected according to Claim 5.

Claim 17 has been analyzed and rejected according to Claim 5.

Claim 21 has been analyzed and rejected according to claim 5.

Claims 6, 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877 and Inoue et al, US Patent 5,771,294 as applied to claim 1 above, in view of Brungart, US Patent 6,956,955 B1 and further in view of Kates et al, US Patent 6,792,114 B1.

Re Claim 6, the combined teachings of Abel and Inoue et al disclose the method of claim 1, but fails to disclose wherein the spectral model comprises a model selected from a group consisting of a Linear Predictive Coding (LPC) model and a pole-zero model. However, Brungart discloses a Linear Predictive Coding (LPC) model (*col. 9, lines 43-61*). Kates et al disclose a pole-zero model (*col. 4, lines 5-16*).

Taking the combined teaching of Abel, Inoue et al, Brungart and Kates et al as a whole, one skilled in the art would have found it obvious to modify the method according to Abel and Inoue et al with wherein the spectral model includes at least one of a Linear Predictive Coding (LPC) model as taught in Brungart (*col. 9, lines 43-61*) with a pole-zero model as taught in Kates et al (*col. 4, lines 5-16*) so that signals could be encoded at low bit rates to provide accurate estimates of signal parameters and impulses can be obtained.

Claim 12 has been analyzed and rejected according to Claim 6.

Claim 19 has been analyzed and rejected according to Claim 6.

Claims 7, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel, US Patent 6,072,877 and Inoue et al, US Patent 5,771,294 as applied to claim 1 above, in view of Kates, US Patent 6,980,665 B2.

Re Claim 7, the combined teachings of Abel and Inoue et al disclose the method according to claim 1, but fails to disclose wherein the warped acoustic correction filter is the inverse of the low order spectral model. However, Kates does (*col. 5, lines 62-67*).

Taking the combined teachings of Abel, Inoue et al and Kates as a whole, one skilled in the art would have found it obvious to modify the method according to Abel and Inoue et al with wherein the warped acoustic correction filter is the inverse of the low order spectral model as taught in Kates (*col. 5, lines 62-67*) to compensate for filter delays.

Claim 13 has been analyzed and rejected according to Claim 7.

Claim 18 has been analyzed and rejected according to Claim 7.

Claim 22 has been analyzed and rejected according to claims 5 & 6.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Monikang whose telephone number is 571-270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George Monikang 9/13/2007

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600